

## **Film Photography**

The specimen must be in focus. The area between the outer marks on the viewing screen will be in the photograph when negatives are used.

Data can be recorded on the negative using Text, at the top of the keyboard. Also recorded on the negative are the film number, kV, magnification, and a scale bar.

Make sure that Exp 'Auto' is lit. This button is located on the right panel above the Photo button. Press the Photo button to bring a negative into position under the viewing screen. On the monitor a message appears asking that the brightness be adjusted. This refers to the exposure time and this is done using the brightness knob on the left panel. The exposure time is given on the monitor. It must be set to at least two seconds. If it has the button can be pressed again and the negative will be exposed. The total number of unexposed film plates is given on the monitor.

### Film Change

The room lights must be off. The orange light should be on. The warning sign should be placed on the outside door. Gloves must be used when you are holding the receiving and film boxes. The sodium lamp in the darkroom must be turned on 5 minutes before use.

The film desiccator contains the receiving box, the new film box, and the empty negative plates. To get into the desiccator the right button is pressed. It will take a few minutes for the desiccator to come up to atmospheric pressure. The receiving box can then be taken out. If there are fewer than 10 plates left in the film box, also take the new film box out of the desiccator.

Turn the bar on the TEM camera door from the 6 o'clock to the 9 o'clock position. Open the nitrogen tank in back of the TEM. After nitrogen fills the TEM camera chamber turn off the nitrogen tank and exchange the receiving box and, if need be, the film box.

Make sure that the boxes are properly seated in their racks in the camera chamber. Close the camera chamber door. Turn the handle back to the 6 o'clock position so as to evacuate air from the camera chamber.

The old film box is placed in the desiccator. If you have swapped film boxes you must leave a note on the TEM saying that you did so. Bring the receiving box into the darkroom. With only the sodium lamp or red light on, the receiving box can be opened and the film plates removed. The film can then be taken from the film plates and placed into negative holders for development or placed into a used film box for storage.

## Film Development

Turn on sodium lamp and water bath 5 minutes before use. There are holders for individual negatives or a rack that will hold twelve negatives. For a few negatives it is easier to use the individual holders.

The D-19 developer working solution can be used for 60 negatives and should be no more than 2 weeks old. The Rapid Fix can be used for 100 negatives. The negatives are placed in the developer tank for 4 minutes. During this time the negatives should be agitated so that they are evenly developed.

After 4 minutes the negatives are placed in to the water bath for one minute.

The negatives are placed into Rapid Fix for 4 minutes. After this the room lights may be turned on. Shut off the sodium lamp if no one else is to use it.

Negatives are washed for 30 minutes in the water bath.

To eliminate drying spots the negatives are dipped into a Photoflo solution, made up at 1:200 from the concentrate, for 30 seconds.

Negatives are left on counter to dry.

At this time the darkroom sign must be taken off the outside door.